

DEPARTMENT OF NATURAL RESOURCES

POSITION DESCRIPTION

Title: Water Management Engineer
Classification: Water Regulation and Zoning Engineer – Senior
Program: Water Management

Purpose of the Position:

This position is primarily responsible for implementing the Dam Safety and Floodplain Management program. The position provides technical engineering analysis and support to the Water Management program. In addition, this position provides engineering expertise to communities, regional staff, other governmental agencies, consultants and the public and provides engineering analysis of dams and other physical alterations of surface waters within the assigned area. The floodplain functions of this position include: developing, reviewing, adopting and administering floodplain projects and providing training for local zoning programs.

Geographic Scope and Travel Requirements:

This position is responsible for implementing the Dam Safety and Floodplain Management program in the assigned counties. Frequent travel within the assigned counties is required. Occasional travel throughout the state will be required to assist with heavy workload in other parts of the state or for meetings with other DNR program staff.

Scope of Authority:

The position is under the general supervision of and reports to the Regional Waterway Protection Supervisor. This position is responsible for implementing the Dam Safety and Floodplain Management program in their assigned geographical area and providing technical assistance for the waterway and wetland permit program. The position is responsible for approval of plans related to dams, review and approval of hydrologic and hydraulic analyses related to dams and floodplains and approval of local floodplain zoning ordinances. The position will receive training and mentoring from senior staff and the supervisor to assure they can realize the full scope of responsibility.

<u>% Time</u>	<u>Goals and Worker Activities</u>
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| 40% | A. Provide engineering and ordinance assistance to communities and for floodplain zoning (NR 116) related activities. |
| | A1. Review hydrologic and hydraulic analyses of highway projects, floodplain development and mapping studies performed by private consultants, state and federal agency engineers for consistency with state standards and applicability for use in floodplain zoning ordinances. Conduct hydrologic and hydraulic analysis to establish regional flood elevations when needed by local officials in conjunction with a building permit application. |
| | A2. Review and approve local map amendments, ordinance changes, and conditional use permits in floodplain areas to determine compliance with requirements under NR 116. |
| | A3. Provide floodplain zoning technical support to zoning administrators. Respond to local inquiries regarding ordinance requirements, ordinance interpretation, mapping issues, enforcement, and department priorities concerning floodplain zoning issues. |
| | A4. Coordinate and provide training for zoning officials, Boards of Adjustments/Appeals, and local planning committee members. |
| | A5. Provide recommendations on referral actions to the Department of Justice. Coordinate with staff attorneys and Department of Justice attorneys. Represent the Department as a witness on engineering or zoning matters at contested case hearings and at circuit court or appellate court hearings for alleged violations of s. 87.30, Wisconsin Statutes, Chapter NR 116, Wisconsin Administrative Code or local floodplain zoning ordinances. |
| | A6. Assist in compliance monitoring of local communities to ensure proper administration of floodplain ordinances. |

- 40% B. Implement the Dam Safety Program within assigned area to ensure protection of life, health and property.
- B1. Perform on-site inspection and surveys of dams, embankments and dam appurtenances to determine structural integrity and operational capabilities. Prepare an inspection report for the dam owner which identifies deficiencies and includes recommendations for improving the safety of the dam.
 - B2. Review inspection reports submitted by professional engineers on behalf of the dam owner. Prepare a letter to the dam owner either concurring with the findings and recommendations of the report or issuing other appropriate directives to address safety issues at the dam.
 - B3. Review historic files and hydraulic, hydrologic and stability analyses for dams and downstream areas to determine compliance of the dam with professional engineering standards and chs. NR 116 and NR 333. Estimate the dam's hazard classification based upon potential loss of life downstream development areas.
 - B4. Review plans and specifications for repairs or modifications to dams which are required to be submitted by a registered professional engineer. Coordinate follow-up actions with dam owners, engineering consultants and regional staff to ensure completion of necessary repairs.
 - B5. Prepare enforcement orders, when necessary, directing dam owners to drawdown, repair, modify, reconstruct, or abandonment and remove a dam to ensure the safety of the dam and of life, health and property downstream.
- 10% C. Perform and/or review engineering studies necessary to the evaluation of permits or enforcement actions under chs. 30 & 31, Stats., for actions in navigable waters of the state.
- C1. Analyze, approve and/or require modifications of bridges, culverts, and shoreline protection projects and other structures to ensure structural stability and compatibility with basin hydrology and hydraulics and flood plain management standards.
 - C2. Supervise and conduct enforcement surveys on alleged violations and develop supporting evidence.
 - C3. Represent the Department as an expert witness on engineering matters at contested case hearings and at circuit court or appellate court hearings for alleged violations of ch. 30, Stats.
 - C4. Analyze dredging proposals, channel changes, enlargements of waterways and diversions from waterways for compliance with accepted engineering standards and statutory standards. Analyze and approve bulkhead lines for conformance with accepted surveying techniques and statutory standards. Approve plan when in compliance with standards.
- 5% D. General duties and responsibilities
- D1. Cooperate with other Departmental programs to ensure the best available environmental and resource management as well as ensuring the protection of health, safety and property.
 - D2. Participate in the efforts of the State Dam Safety\ Floodplain Team, including attendance at meetings. Provide assistance in development of department guidance on implementation of the dam safety and floodplain programs. Provide regional perspective and analysis of legislative proposals and participate in the development of administrative rules.
 - D3. Provide information to the media, press, radio and television, both live and through press releases on issues relevant to this position as directed.
 - D4. Direct informational requests from the general and regulated public to the proper source(s).
 - D5. Prepare and make presentations to communities, other governmental bodies, and other governmental agencies, consultants, professional and private associations and citizens as directed.
 - D6. Participate in continuing education activities to remain current with new developments within the profession. Attend seminars, conferences, workshops, technical training session's classes and/or other types of training opportunities to keep abreast of relevant engineering

technology. Review periodicals and technical publications to remain current on innovations within the profession.

D7. Other duties as assigned

5% E. Emergency response to flooding and dam failures.

Provide expertise, guidance and on-site command during emergency situations, anywhere in the State of Wisconsin, in conjunction with the Division of Emergency Government and local emergency managers where imminent dam failure or significant flooding threatens life, health and/or loss of property.

Special Requirements

- Ability to meet the requirements to operate a state vehicle, including obtaining and maintaining a Wisconsin driver's license.

Knowledge, Skills and Abilities

1. Degree in engineering from an ABET accredited University or will graduate with the degree by the date of the appointment; or the education and experience necessary to be deemed an Engineer-in-Training by the Wisconsin Department of Safety & Professional Services.
2. Education or training and knowledge of hydrologic and hydraulic analyses. Some experience developing and reviewing hydrologic and hydraulic models including HEC RAS and HEC HMS or similar hydrologic and hydraulic models.
3. Education or training and some knowledge of infrastructure inspection techniques, dam or drainage system design or construction, and structural or slope stability analyses/design.
4. Knowledge of local, state and federal dam and floodplain regulations including the Wisconsin Model Floodplain Ordinance, NR 116 or 44 CFR, NR 333.
5. Knowledge of GIS.
6. Knowledge of training skills, group dynamics, dispute resolution, and individual motivation.
7. Knowledge of written and oral communication techniques.

Physical Requirements and Environmental Factors

Strength Requirements

Sedentary work (exerting up to 10 pounds of force occasionally and/or a negligible amount of force frequently) about 60% over a year's time.

Light work (exerting up to 20 pounds of force occasionally and/or up to 10 pounds of force frequently) less than 40% over a year's time.

Physically, this position will spend approximately 60% or more of time indoors

Environmental Factors: May need to frequently spend more than one hour outdoors in temperatures below 32 degrees, above 80 degrees and in harsh weather conditions. Ability to traverse uneven ground, steep grades and heavy brush.

Equipment Used: Office equipment, surveying and inspection equipment.

Telework Evaluation

Limited portions of this position may be suitable for teleworking.